

WHAT WE CLAIM IS:

1. A wireless communications system comprising:  
  
at least one mobile communications device capable of having user requests input into it;  
  
a remotely located knowledge agency having access to information that is responsive to user requests;  
  
means for providing communication between the mobile communications device and the knowledge agency;  
  
a knowledge database containing information associated with the mobile communications device, said information being useful for the generation of a response to a user request; and  
  
a software agent adapted to access the information in the knowledge database and identify new information to be stored in the knowledge database.
2. The system of Claim 1 wherein the mobile communications device further comprises a means for determining the position of the device.
3. The system of Claim 2 wherein the position determining means comprises a GPS locator.
4. The system of Claim 1 wherein the means for providing communication includes the Internet.

5. The system of Claim 1 wherein the information is segregated into private information and public information.

6. The system of Claim 1 wherein the information is segregated into private information, public information, and information collected by the software agent.

7. The system of Claim 1 wherein the knowledge agency comprises a plurality of sub-agencies having expertise in different matters.

8. The system of Claim 1 wherein the knowledge agency comprises a plurality of knowledge agents.

9. The system of Claim 8 wherein at least one electronic database and at least one electronic directory are electronically accessible to the knowledge agency.

10. The system of Claim 9 wherein at least one knowledge agent includes means to select response information from the electronic database based on a user request and information stored in the knowledge database.

11. The system of Claim 1 further comprising a voice recognition device operatively linked to the mobile communications device.

12. The system of Claim 11 further comprising means for generating a synthesized speech response to a voice request input into the mobile communications device.

13. A system for providing wireless communication between a mobile communications device and a remotely located knowledge agency, said system comprising:

at least one mobile communications device, said device including

means for transmitting and receiving wireless communications,

a knowledge database, and

means for accessing the knowledge database; and

means for providing a communication link between the mobile communications device and a remotely located knowledge agency.

14. The system of Claim 13 wherein the mobile communications device further comprises a means for determining the position of the device.

15. The system of Claim 14 wherein the position determining means comprises a GPS locator.

16. The system of Claim 13 wherein the means for accessing the knowledge database comprises a software client agent.

17. The system of Claim 13 wherein the communications link includes the Internet.

18. The system of Claim 13 wherein the knowledge database includes private information and public information.

19. The system of Claim 13 wherein the knowledge database includes a private database and a public database.

20. The system of Claim 16 wherein the knowledge database includes information collected by the software client agent.

21. The system of Claim 13 wherein the knowledge database includes an agent knowledge and personality database.

22. The system of Claim 13 wherein the knowledge database includes private information, public information, and information collected by the means for accessing the knowledge database.

23. The system of Claim 13 wherein the knowledge database includes a private database, a public database, and an agent knowledge and personality database.

24. The system of Claim 13 wherein the knowledge agency comprises a plurality of sub-agencies having expertise in different matters.

25. The system of Claim 13 wherein the knowledge agency comprises a plurality of knowledge agents.

26. The system of Claim 25 further comprising at least one electronic database and at least one electronic directory that are electronically accessible to a knowledge agent.

27. The system of Claim 25 wherein at least one knowledge agent includes means to access information from an electronic database based on a request received from the mobile device and information stored in the knowledge database.

28. The system of Claim 25 wherein at least one knowledge agent includes means to access information from an electronic database based on a request received from a mobile device and stored ratings information relating to the request.

29. The system of Claim 13 wherein the mobile device further comprises a voice recognition device.

30. The system of Claim 29 wherein the mobile device further comprises means for generating a synthesized speech response to a voice request input into the mobile device.

31. The system of Claim 13 wherein the mobile device further comprises means for generating a response to a request input into the mobile device.

32. The system of Claim 13 wherein the knowledge agency comprises a voice recognition device.

33. The system of Claim 32 wherein the knowledge agency comprises means for generating a synthesized speech response to a voice request input into the mobile device.

34. A method of providing information responsive to a user request using a wireless communications system, said method comprising the steps of:

inputting a request into a mobile communications device, said request containing content capable of being characterized;

accessing user information stored in a knowledge database based on the request content;

providing selected user information and the request content to a knowledge agency;

accessing response information based on the selected user information and the request content; and

generating a response to the request based on the accessed response information.

35. The method of Claim 34 wherein the user information comprises information selected from the group consisting of: private information, public information, personality information, and location information.

36. The method of Claim 34 wherein the user information comprises private information, public information, personality information, and location information.

37. The method of Claim 34 wherein the step of accessing user information stored in a knowledge database comprises the steps of:

providing the request to a software agent;

using the software agent to parse the request to identify the request content;

using the software agent to access user information from the knowledge database; and

using the software agent to select user information based on the request content.

38. The method of Claim 37 wherein the software agent resides in a mobile wireless communications device.

39. The method of Claim 38 wherein the knowledge database resides in the mobile wireless communications device.

40. The method of Claim 34 wherein the knowledge database resides in a mobile wireless communications device.

41. The method of Claim 34 wherein the step of providing selected user information and the request content to a knowledge agency comprises the steps of:

transmitting the selected user information from a mobile wireless communications device to a base station; and

transmitting the selected user information from the base station to the knowledge agency over a link that includes the Internet.

42. The method of Claim 41 wherein the step of accessing user information stored in a knowledge database comprises the steps of:

providing the request to a software agent residing in the mobile wireless communications device;

using the software agent to parse the request to identify the request content;

using the software agent to access user information from the knowledge database residing in the mobile wireless communications device; and

using the software agent to select user information based on the request content.

43. The method of Claim 34 wherein the step of accessing response information comprises the steps of:

providing the selected user information and the request content to one or more selected knowledge agents within the knowledge agency; and

using the knowledge agents to access the response information.

44. The method of Claim 34 wherein the step of generating a response to the request comprises the steps of:

filtering the response information to identify the most appropriate response information;

and

interjecting the most appropriate response information into a prestored answer template to generate the response.



45. A knowledge-based information retrieval system comprising:

a wireless communications network;

a wireless communications device operating within the network and comprising a transceiver that sends and receives communications across the network, a software client agent that receives an information request from a user of the device and retrieves information responsive to the request, a position determination device that determines the location of the wireless device and provides the location to the client agent to assist in information retrieval, and a knowledge database containing data of use to the client agent in information retrieval; and

a knowledge agency comprising multiple knowledge agents that communicate with the client agent over the wireless network and that access associated information resources to retrieve information that is responsive to the information request.

46. The information retrieval system of Claim 45 wherein the knowledge database comprises:

a private database that stores private information about the user;

a public database that stores public information about the user; and

an agent knowledge database that stores information retrieved and developed by the client agent.

47. The information retrieval system of Claim 46, wherein

the private database stores at least one item selected from a group consisting of: the user's name, social security number, contacts, schedule, passwords, account information, and passwords;

the public database stores at least one item selected from a group consisting of user preferences, item ratings, user interests, user needs, and the location of the wireless device; and

the agent knowledge database stores at least one item selected from the group consisting of information related to the user's mood and other information learned by the client agent about the user and the user's preferences.

48. The information retrieval system of Claim 45 wherein the position determination device is a GPS receiver.

49. The information retrieval system of Claim 45 further comprising a collaborative filter for refining the information retrieved by the knowledge agents.

50. The information retrieval system of Claim 45, wherein the wireless device further comprises an audio processor and a voice recognition device for receiving voice input from the user and converting the input into digital data for use by the client agent, and a speech synthesis device for synthesizing the retrieved information into voice data for announcement to the user.

51. The information retrieval system of Claim 45, wherein the information request is parsed by the agent and matched with possible answers.

52. The information retrieval system of Claim 51, wherein parsing involves analysis of the syntax of the information request and comparison with a lexicon hierarchy of word meanings.

53. The information retrieval system of Claim 45 further comprising means for controlling a conversational dialog between the user and the client agent.

54. The information retrieval system of Claim 53, wherein the dialog control means comprises:

a short-term memory permitting the client agent to access a previous topic when responding to the user or to access another next topic;

templates of anticipated responses to the next user input; and

an activation network that increases and decreases the priorities of the templates based on relevancy.

55. A method for knowledge-based information retrieval in a wireless communications system comprising the following steps:

(a) receiving an information request from a user of a wireless communications device;

(b) providing the information request to a software agent associated with the wireless communications device;

(c) providing data of relevance to the information request to the software agent;

(d) with the software agent, communicating the information request via the wireless network to a knowledge agency comprised of specialized knowledge agents;

(e) with the knowledge agency, searching appropriate information resources to retrieve information responsive to the information request;

(f) with the knowledge agency, communicating the retrieved information via the network to the software agent; and

(g) providing the retrieved information to the user of the wireless device.

56. The method of Claim 55, wherein in step (c) the data of relevance includes the location of the wireless device and user preferences stored on the wireless device.

57. The method of Claim 55, wherein the knowledge agency resides on a server connected to the Internet and in step (e) the information resources include electronic databases and directories.

58. A method for controlling dialog between a software agent associated with a wireless communications device and a user of the device comprising the following steps:

(a) receiving an input from the user;

(b) parsing the input;

(c) retrieving a list of potential replies to the input from stored templates and selecting a reply;

(d) initiating communication between the software agent and an outside knowledge agency to retrieve any information necessary to complete the reply; and

(e) providing the completed reply to the user.

59. The method of Claim 58, wherein step (b) comprises analyzing the syntax of the user input and comparing the syntax to a lexicon hierarchy of potential word meanings.

60. The method of Claim 58, wherein step (a) comprises receiving a voice input from the user and converting the voice input into digital form, and step (e) comprises converting a digital reply into a voice reply that is provided to the user.

61. The method of Claim 58, wherein step (c) further comprises activating templates for potential replies to the next user input, and assigning priorities to the templates according to the current user input.

62. The method of Claim 58, wherein in step (c) the current conversational mood is assessed before selecting a reply.

63. The method of Claim 62, wherein the current conversational mood is assessed by comparing the current input to a lexicon to generate the mood of the current input, and comparing the mood of the current input to the mood of the previous input to generate a current conversational mood.